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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/944,344	09/04/2001	Shiroshi Matsuki	50352-02	9915

7590 09/16/2004

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EXAMINER	
WONG, EDNA	

ART UNIT	PAPER NUMBER
1753	

DATE MAILED: 09/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/944,344	MATSUKI ET AL.	
	Examiner	Art Unit	
	Edna Wong	1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-13 is/are pending in the application.

4a) Of the above claim(s) 4-13 is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-3 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 2, 2004 has been entered.

Claim Rejections - 35 USC § 112

Claims **1-3** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1

line 8, "the impurities" lack antecedent basis.

Claim 2

line 7, "the impurities" lack antecedent basis.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

I. Claim **1** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Bartley** (US Patent No. 4,677,234) in combination with **Okada et al.** (US Patent No. 6,218,335 B1) and **Fernandez et al.** (US Patent No. 5,449,845).

Bartley teaches a method for manufacturing a copper electroplating material adapted to be fed as a copper ion supply to a copper plating bath in copper electroplating comprising the step of:

heating basic copper carbonate powder (col. 6, lines 59-62) to a temperature of 250°C to 800°C (= from about 200°C to about 500°C) [col. 7, lines 40-46] in an atmosphere which is not rendered reductive to carry out thermal decomposition of the basic copper carbonate (= calcination involves high temperature heating under oxidizing conditions so that the carbonate is decomposed and the volatile material is expelled) [col. 7, lines 33-40], to thereby produce easily dissolved copper oxide power (= conversion of carbon carbonate to copper oxide) [col. 7, lines 43-44].

Bartley does not teach supplying basic copper carbonate powder into a heating furnace.

However, Okada teaches that calcination can be conducted in any ordinary calcining apparatus comprising an electric furnace (col. 3, lines 28-34).

Thus, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of Bartley by supplying basic copper carbonate powder into a heating furnace because calcination can be conducted in any ordinary calcining apparatus comprising an electric furnace as taught by Okada (col. 3, lines 28-34).

As to washing the easily dissolved copper oxide powder with water for reducing the impurities which have been included in the basis copper carbonate powder from the easily dissolved copper oxide powder to provide the copper electroplating material, Fernandez teaches washing a copper oxide precipitate with water to remove soluble salts, including any excess alkali (col. 7, line 68 to col. 8, line 1). Thus, it is well within the skill of the ordinary artisan to have removed residues as taught by Fernandez (col. 7, line 68 to col. 8, line 69).

Furthermore, it appears that when preparing copper oxide (Fernandez, col. 7, lines 5-12 and lines 56-66; and col. 8, lines 38-53), impurities or residues would have been present to a certain degree and it would have been desirable to the artisan to have removed them to obtain a purer product for further use (col. 9, lines 15-26).

II. Claim **3** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Bartley** (US Patent No. 4,677,234) in combination with **Okada et al.** (US Patent No. 6,218,335 B1) and **Fernandez et al.** (US Patent No. 5,449,845) as applied to claim 1 above, and

further in view of **Gottfried et al.** (US Patent No. 4,659,555).

Bartley, Okada et al. and Fernandez et al. are as applied above and incorporated herein.

Bartley does not teach wherein the basic copper carbonate is obtained by mixing an aqueous solution of a copper salt selected from the group consisting of copper chloride, copper sulfate and copper nitrate and an aqueous solution of a carbonate of a material selected from the group consisting of alkaline metal, alkaline earth metal and ammonia (NH_4) with each other, reacting both aqueous solutions with each other while heating them, to thereby deposit a reaction product, and separating the reaction product by filtration.

However, Gottfried teaches a process for preparing basic copper carbonated comprising the steps of:

(a) mixing an aqueous solution of a copper salt selected from the group consisting of copper chloride, copper sulfate and copper nitrate (= a waste solution from copper etching processes of $CuCl_2$) and an aqueous solution of carbonate of a material selected from alkaline metal, alkaline earth metal and ammonia (NH_4) (= sodium carbonate solution) with each other; and

(b) reacting both aqueous solutions with each other while heating them (= a temperature of 60°C), to thereby deposit a reaction product (= basic copper carbonate

as a light green precipitated sludge), and separating the reaction product by filtration (filtered, washed and dried) [col. 2, line 56 to col. 3, line 6].

Thus, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of Bartley with wherein the basic copper carbonate is obtained by mixing an aqueous solution of a copper salt selected from the group consisting of copper chloride, copper sulfate and copper nitrate and an aqueous solution of carbonate of a material selected from alkaline metal, alkaline earth metal and ammonia (NH_4) with each other, reacting both aqueous solutions with each other while heating them, to thereby deposit a reaction product, and separating the reaction product by filtration because Bartley is silent as to how the copper carbonate is obtained. Thus, it is well within the skill of the artisan to obtain the copper carbonate by the process disclosed by Gottfried (col. 2, line 56 to col. 3, line 6) because the basic copper carbonate so obtained is particularly suitable as a feed additive and for the preparation of catalysts as taught by Gottfried (col. 2, lines 49-51).

III. Claim **2** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Bartley** (US Patent No. 4,677,234) in combination with **Fernandez et al.** (US Patent No. 5,449,845).

Bartley teaches a method for manufacturing a copper electroplating material adapted to be fed as a copper ion supply to a copper plating bath in copper

electroplating comprising the step of:

heating basic copper carbonate powder (col. 6, lines 59-62) to a temperature of 250°C to 800°C (= from about 200°C to about 500°C) [col. 7, lines 40-46] in an atmosphere which is not rendered reductive to carry out thermal decomposition of the basic copper carbonate (= calcination involves high temperature heating under oxidizing conditions so that the carbonate is decomposed and the volatile material is expelled) [col. 7, lines 33-40], to thereby produce easily dissolved copper oxide power (= conversion of carbon carbonate to copper oxide) [col. 7, lines 43-44].

Bartley does not teach washing the easily dissolved copper oxide powder with water to reduce the impurities which in the basis copper carbonate powder from the easily dissolved copper oxide powder to provide the copper electroplating material.

However, Fernandez teaches washing a copper oxide precipitate with water to remove soluble salts, including any excess alkali (col. 7, line 68 to col. 8, line 1).

Thus, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of Bartley by washing the easily dissolved copper oxide powder with water to reduce the impurities which in the basis copper carbonate powder from the easily dissolved copper oxide powder to provide the copper electroplating material because this would have removed

residues as taught by Fernandez (col. 7, line 68 to col. 8, line 69).

Furthermore, it appears that when preparing copper oxide (Fernandez, col. 7, lines 5-12 and lines 56-66; and col. 8, lines 38-53), impurities or residues would have been present to a certain degree and it would have been desirable to the artisan to have removed them to obtain a purer product for further use (col. 9, lines 15-26).

IV. Claim **3** is rejected under 35 U.S.C. 103(a) as being unpatentable over as **Bartley** (US Patent No. 4,677,234) in combination with **Fernandez et al.** (US Patent No. 5,449,845) applied to claim 2 above, and further in view of **Gottfried et al.** (US Patent No. 4,659,555).

Bartley and Fernandez et al. are as applied above and incorporated herein.

Bartley does not teach wherein the basic copper carbonate is obtained by mixing an aqueous solution of a copper salt selected from the group consisting of copper chloride, copper sulfate and copper nitrate and an aqueous solution of a carbonate of a material selected from the group consisting of alkaline metal, alkaline earth metal and ammonia (NH_4) with each other, reacting both aqueous solutions with each other while heating them, to thereby deposit a reaction product, and separating the reaction product by filtration.

However, Gottfried teaches a process for preparing basic copper carbonated

comprising the steps of:

(a) mixing an aqueous solution of a copper salt selected from the group consisting of copper chloride, copper sulfate and copper nitrate (= a waste solution from copper etching processes of $CuCl_2$) and an aqueous solution of carbonate of a material selected from alkaline metal, alkaline earth metal and ammonia (NH_4) (= sodium carbonate solution) with each other; and

(b) reacting both aqueous solutions with each other while heating them (= a temperature of 60°C), to thereby deposit a reaction product (= basic copper carbonate as a light green precipitated sludge), and separating the reaction product by filtration (filtered, washed and dried) [col. 2, line 56 to col. 3, line 6].

Thus, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of Bartley with wherein the basic copper carbonate is obtained by mixing an aqueous solution of a copper salt selected from the group consisting of copper chloride, copper sulfate and copper nitrate and an aqueous solution of carbonate of a material selected from alkaline metal, alkaline earth metal and ammonia (NH_4) with each other, reacting both aqueous solutions with each other while heating them, to thereby deposit a reaction product, and separating the reaction product by filtration because Bartley is silent as to how the copper carbonate is obtained. Thus, it is well within the skill of the artisan to obtain the copper carbonate by the process disclosed by Gottfried (col. 2, line 56 to col. 3, line 6)

because the basic copper carbonate so obtained is particularly suitable as a feed additive and for the preparation of catalysts as taught by Gottfried (col. 2, lines 49-51).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edna Wong whose telephone number is (571) 272-1349. The examiner can normally be reached on Mon-Fri 7:30 am to 3:30 pm, Flex Schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Edna Wong
Primary Examiner
Art Unit 1753

EW
September 13, 2004